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Tree Farm Licence 35

Weyerhaeuser Company Limited

Rationale for Allowable Annual Cut (AAC) Determination

Effective November 1, 2001

Ken Baker
Deputy Chief Forester

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Objectives of this Document

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 35 issued to Weyerhaeuser Company Limited (Weyerhaeuser or " the licensee"). This document also identifies where new or better information is needed for incorporation in future determinations.

Description of the TFL

TFL 35, also known as the Jamieson Creek TFL, is located approximately 40 kilometres north of the city of Kamloops in the British Columbia Forest Service (BCFS) Kamloops Forest District. It lies to the west of Heffley Creek and is surrounded entirely by the Kamloops Timber Supply Area (TSA). The total area of the TFL is 36 564 hectares, of which 31 172 hectares are assumed to be available for timber harvesting in the long term.

The TFL contains numerous small waterways and lakes, including Jamieson Creek, which runs in a general northwest to southeast direction through the licence area. Topographically, it is characterized by mid-elevation plateaux and gently rolling slopes. The eastern half of the area lies primarily within the Montane Spruce biogeoclimatic zone, with small patches of Interior Cedar-Hemlock and Interior Douglas-fir in the northeast and southeast corners. The western half is predominantly in the Engelmann Spruce-Subalpine Fir biogeoclimatic zone. The principal tree species are lodgepole pine, Engelmann spruce, subalpine fir, and interior Douglas-fir.

History of the AAC

The AAC for TFL 35 was determined to be 33 131 cubic metres when the licence was first issued in 1959.

The AAC increased to 50 970 cubic metres and 82 119 cubic metres in 1963 and 1967, respectively, due to changes in inventory techniques and utilization standards. Further improvements in utilization standards resulted in another increase in the AAC in 1968, to 99 109 cubic metres.

By 1983, the AAC had been decreased to 88 000 cubic metres. It remained at this level until 1992 when the AAC was increased to 130 000 cubic metres.

The current AAC for TFL 35 is 125 600 cubic metres, which is allocated to the licensee in its entirety (i.e., the Small Business Forest Enterprise Program does not operate within the TFL area).

New AAC determination

Effective November 1, 2001, the new AAC for TFL 35, is 125 600 cubic metres. This AAC will remain in effect until a new AAC is determined, which must take place within five years of the present determination.

Information sources used in the AAC determination

- *Statement of Management Objectives, Options and Procedures (SMOOP)* for *draft Management Plan No. 9, TFL 35*, Weyerhaeuser Canada Limited, accepted February 15, 2000;
- *TFL 35, Twenty-Year Plan*, Weyerhaeuser Company Limited, accepted August 7, 2001;
- *Proposed Management Plan No. 9: TFL 35*, Weyerhaeuser Company Limited, submitted July 30, 2001;
- *Timber Supply Analysis Information Package: TFL 35*, Management Plan No. 9, Weyerhaeuser Company Limited, accepted February 21, 2001;
- *Timber Supply Analysis Report: TFL 35*, Management Plan No. 9, Weyerhaeuser Company Limited, accepted May 10, 2001;
- *TFL 35 Rationale for AAC determination*, Chief Forester, April 6, 1996;
- *TFL 35 Inventory Audit Report*, BCFS Resources Inventory Branch, July 28, 2000;
- Existing stand yield tables for TFL 35, accepted by BCFS Resources Inventory Branch, May 16, 2001;
- Managed stand yield tables and site index assignments, accepted by BCFS Research Branch, May 5, 2001;
- *Procedures for Factoring Visual Resources into Timber Supply Analyses*, BCFS, March 1998;
- *Kamloops Land and Resource Management Plan (KLkMP)*, July 1995;
- *Kamloops Higher Level Plan Order, Final*, March 13, 1996;
- *Forest Practices Code of British Columbia Act*, as amended;
- *Forest Practices Code of British Columbia Act Regulations and Amendments*, as amended;
- *Forest Practices Code of British Columbia Guidebooks*, BCFS and MELP;
- *Forest Practices Code Timber Supply Analysis*, BCFS and MELP, February 1996;
- *Higher Level Plans: Policy and Procedures*, BCFS and MELP, December, 1996;
- *Identified Wildlife Management Strategy*, February 1999;
- *Landscape Unit Planning Guide*, BCFS and MELP, March 1999;
- Letter from the Minister of Forests to the Chief Forester, dated July 28, 1994, stating the Crown's economic and social objectives;
- Memorandum from the Minister of Forests to the Chief Forester, dated February 26, 1996, stating the Crown's economic and social objectives regarding visual resources;
- Letter from the Deputy Ministers of Forests, and Environment, Lands and Parks, dated August 25, 1997, conveying government's objectives regarding the achievement of acceptable impacts of biodiversity management on timber supply;

- Memorandum from the Director of the Timber Supply Branch of the Ministry of Forests, dated December 1, 1997, entitled *Incorporating Biodiversity and Landscape Units in the Timber Supply Review*;
- Memorandum from BCFS district manager, Tony Buckley to Bob Helfrich, manager, Weyerhaeuser Company Limited regarding district manager's guidance for old-growth management areas operationally and in the timber supply analysis, December 20, 2000;
- Field review of TFL 35 operating conditions and the associated discussions among Weyerhaeuser Company Limited staff, the deputy chief forester, and BCFS regional, district and branch staff, June 20, 2001; and
- Technical review and evaluation of current operating conditions through comprehensive discussions with BCFS and Ministry of Water, Land, and Air Protection (MWLAP) staff including the AAC determination meeting held in Kamloops on June 21, 2001.

Role and limitations of the technical information used

Section 8 of the *Forest Act* requires the chief forester to consider biophysical as well as social and economic information in AAC determinations. A timber supply analysis, and the inventory and growth and yield data used as inputs to the analysis, typically form the major body of technical information used in AAC determinations. Timber supply analyses and associated inventory information are concerned primarily with biophysical factors—such as the rate of timber growth and definition of the land base considered available for timber harvesting—and with management practices.

However, the analytical techniques used to assess timber supply are necessarily simplifications of the real world. There is uncertainty about many of the factors used as inputs to timber supply analysis due in part to variations in physical, biological, and social conditions, although ongoing science-based improvements in the understanding of ecological dynamics will help reduce some of this uncertainty.

Furthermore, technical analytical methods such as computer models cannot incorporate all of the social, cultural, and economic factors that are relevant when making forest management decisions. Therefore, technical information and analysis do not necessarily provide complete answers or solutions to forest management problems such as AAC determinations. The information does, however, provide valuable insight into potential impacts of different resource-use assumptions and actions, and thus forms an important component of the information required to be considered in AAC determinations.

In determining the AAC for TFL 35, I have considered known limitations of the technical information provided, and I am satisfied that the information provides a suitable basis for my determination.

Statutory framework

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining AACs for TSAs and TFLs. Section 8 is reproduced in full as Appendix 1.

In accordance with Section 23(3) of the *Interpretation Act*, the deputy chief forester is expressly authorized to carry out the functions of the chief forester, which include those required under Section 8 of the *Forest Act*.

The chief forester has expressed the importance of consistency of judgement in making AAC determinations. I also recognize the need for consistency of approach. I have observed the chief forester during a number of previous AAC determinations and am familiar with the guiding principles that the chief forester has employed in making AAC determinations. I find these principles to be reasonable and appropriate and I have adopted them as described below in making my AAC determination for TFL 35.

Guiding principles for AAC determinations

Rapid changes in social values and in our understanding and management of complex forest ecosystems mean that there is always some uncertainty in the information used in AAC determinations. When a large number of determinations are made for many forest management units over extended periods of time, administrative fairness requires a reasonable degree of consistency of approach in incorporating these changes and uncertainty. To make his approach in these matters explicit, the chief forester has compiled a set of guiding principles for AAC determinations. I have reviewed these principles and find them to be reasonable, and thus I have adopted and applied them as deputy chief forester in AAC determinations for TFLs. These principles are set out below. If in some specific circumstance it may be necessary to deviate from these principles, I will provide a detailed reasoning in the considerations that follow.

Two important ways of dealing with uncertainty are:

(i) minimizing risk, in respect of which in making AAC determinations, I consider the uncertainty associated with the information before me, and attempt to assess the various potential current and future social, economic, and environmental risks associated with a range of possible AACs; and

(ii) redetermining AACs frequently, to ensure they incorporate current information and knowledge, a principle that has been recognized in the legislated requirement to redetermine AACs every five years. The adoption of this principle is central to many of the guiding principles that follow.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, I attempt to reflect as closely as possible operability and forest management factors that are a reasonable extrapolation of current practices. It is not appropriate to base my decision on unsupported speculation with respect either to factors that could work to increase the timber supply—such as optimistic assumptions about harvesting in unconventional areas, or using unconventional

technology, that are not substantiated by demonstrated performance—or to factors that could work to reduce the timber supply, such as integrated resource management objectives beyond those articulated in current planning guidelines or the *Forest Practices Code of British Columbia Act* and its associated regulations (the Forest Practices Code).

The *Forest Practices Code of British Columbia Regulations* were approved by the Lieutenant Governor in Council on April 12, 1995, and released to the public at that time. The *Forest Practices Code of British Columbia Act* was brought into force on June 15, 1995.

Although implementation of the Forest Practices Code has been underway since the end of the transition period on June 15, 1997, the timber supply implications of some of its provisions, such as those for landscape-level biodiversity, still remain uncertain, particularly when considered in combination with other factors. In each AAC determination the chief forester takes this uncertainty into account to the extent possible in the context of the best available information. In making my determination for TFL 35, as deputy chief forester, I have followed the same approach.

As British Columbia progresses toward completion of strategic land use plans, the eventual timber supply impacts associated with the land-use decisions resulting from the various planning processes—including the Commission on Resources and Environment (CORE) process for regional plans, the Protected Areas Strategy (PAS) and the Land and Resource Management Planning (LRMP) process—are often discussed in relation to current AAC determinations. Since the outcomes of these planning processes are subject to significant uncertainty before formal approval by government, it has been and continues to be the position of the chief forester that in determining AACs it would be inappropriate to attempt to speculate on the timber supply impacts that will eventually result from land-use decisions that have not yet been taken by government. I consider this approach to be reasonable and appropriate. Like the chief forester, therefore, I will not take into account the possible impacts of existing or anticipated recommendations made by such planning processes, nor attempt to anticipate any action the government could take in response to such recommendations.

Moreover, even where government has made a formal land-use decision, it may not always be possible to fully analyze and account for the consequent timber supply impact in a current AAC determination. In many cases, government's land-use decision must be followed by a number of detailed implementation decisions. For example, a land-use decision may require the establishment of resource management zones and resource management objectives and strategies for these zones. Until such implementation decisions are made it would be impossible to fully assess the overall impacts of the land-use decision. Nevertheless, the legislated requirement for five–year AAC reviews will ensure that future determinations address ongoing plan implementation decisions.

However, where specific protected areas have been designated by legislation or by order in council, these areas are no longer considered to contribute to the timber supply in AAC determinations.

For TFL 35, clarification has been provided on many aspects of land and resource use through government's approval in 1995 of the *Kamloops Land and Resource Management Plan* (KLRMP). Moreover, the KLRMP has been declared a higher level plan under the *Forest Practices Code of British Columbia Act* and it is therefore appropriate that this AAC determination consider and reflect that declaration.

Forest Renewal BC has funded a number of intensive silviculture activities that have the potential to affect timber supply, particularly in the long term. As with all components of an AAC determination, like the chief forester, I require sound evidence before accounting for the effects of intensive silviculture on possible harvest levels. Nonetheless, I will consider information on the types and extent of planned and implemented practices as well as relevant scientific, empirical, and analytical evidence on the likely magnitude and timing of any timber supply effects of intensive silviculture.

Some have suggested that, given the large uncertainties present with respect to much of the data in AAC determinations, any adjustments in AAC should wait until better data are available. I agree that some data are not complete but this will always be true where information is constantly evolving and management issues are changing. Moreover, in the past, waiting for improved data created the extensive delays that resulted in the urgency to redetermine many outdated AACs in the province between 1992 and 1996. In any case, the data and models available today are improved from those available in the past, and will undoubtedly provide for more reliable determinations.

Others have suggested that, in view of data uncertainties, the chief forester should immediately reduce some AACs in the interest of caution. However, any AAC determination made by the chief forester or myself must be the result of applying our individual judgement to the available information, taking any uncertainties into account. Given the large impacts that AAC determinations can have on communities, no responsible AAC determination can be made solely on the basis of a response to uncertainty. Nevertheless, in making my determination, I may need to make allowances for risks that arise because of uncertainty.

With respect to First Nations' issues, I am aware of the Crown's legal obligations resulting from court decisions in recent years, including those in the Supreme Court of Canada. The AAC that I determine should not in any way be construed as limiting those obligations under these decisions, and in this respect it should be noted that my determination does not prescribe a particular plan of harvesting activity within TFL 35.

With respect to future treaty decisions, as with other land-use decisions it would be inappropriate for me to attempt to speculate on the impacts on timber supply that will result from decisions that have not yet been taken by government.

Overall, in making this AAC determination, as the deputy chief forester, I am mindful of the mandate of the Ministry of Forests as set out in Section 4 of the *Ministry of Forests Act*, and of the chief forester's responsibilities under the *Forest Practices Code of British Columbia Act* and the *Forest Act*.

The Role of the Base Case

In considering the factors required under Section 8 of the *Forest Act* to be addressed in AAC determinations, I am assisted by timber supply forecasts provided to me through the work of the Timber Supply Review program for TSAs and TFLs.

For each AAC determination for a TFL, a timber supply analysis is carried out using an information package including data and information from three categories—land base inventory, timber growth and yield, and management practices. Using this set of data and a computer model, a series of timber supply forecasts is produced, reflecting different starting harvest levels, rates of change over time, and potential trade-offs between short– and long-term harvest levels.

From this range of forecasts, one is chosen that attempts to avoid excessive changes from decade to decade and significant timber shortages in the future, while ensuring the long-term productivity of forest lands. This is known as the 'base case' forecast, and forms the basis for comparison when assessing the effects of uncertainty on timber supply.

Because it represents only one in a number of theoretical forecasts, and because it incorporates information about which there may be some uncertainty, the base case forecast for a TFL is not an AAC recommendation. Rather, it is one possible forecast of timber supply, whose validity—as with all the other forecasts provided—depends on the validity of the data and assumptions incorporated into the computer simulation used to generate it. In some cases, an AAC is determined that coincides with the base case starting point. In other cases, an AAC is determined which differs significantly from the modelled starting point.

Therefore, much of what follows in the considerations outlined below is an examination of the degree to which I believe the assumptions made in generating the base case forecast are accurate, current, and complete and the degree to which I believe the base case predictions of timber supply should be adjusted.

Adjustments are made on the basis of informed judgement, using current available information about forest management, which may have changed since the original information package was assembled. Forest management data are particularly subject to change during periods of legislative or regulatory change, such as the enactment of the Forest Practices Code, or during the implementation of new policies, procedures, guidelines or plans.

Thus it is important to remember, in reviewing the considerations which lead to the AAC determination, that while the timber supply analysis with which I am provided is integral to those considerations, the AAC determination itself is not a calculation but rather is a synthesis of judgement and analysis in which numerous risks and uncertainties are weighed. Depending upon the outcome of these considerations, the AAC determined may or may not coincide with the base case forecast. Judgements that may be based in part on uncertain information are essentially qualitative in nature and, as such, are subject to an element of risk. Consequently, once an AAC has been determined, no additional precision

or validation may be gained by attempting a computer analysis of the combined considerations to confirm the exact AAC determined.

Timber supply analysis

The timber supply analysis for TFL 35 was prepared by licensee staff using the WOODSTOCK timber supply model, which is a spatially-implicit, optimization model. Optimization models employ a mathematical algorithm to find an optimal harvest forecast based on specific objectives, constraints, and data. Spatially-implicit models approximate the timber supply impacts of implementing spatial restrictions using forest cover objectives, rather than by tracking the spatial relationship between cutblocks.

The licensee used the spatially-explicit, simulation version of the COMPLAN timber supply model to generate the 20-year plan. Simulation models project the outcome of a specific schedule of management activities, constraints, and assumptions. Spatially explicit in this case means that the model accounts for the spatial relationship between mapped cutblocks.

Based on a review by expert BCFS staff as well as my previous experience reviewing results from similar models, I am satisfied that these models are capable of providing a reasonable projection of timber supply.

For TFL 35, the licensee presented two base case options. In the first option (Option 1) the full old-growth retention target was assumed to be required immediately in the model. In this option, a harvest level of 125 200 cubic metres per year was maintained throughout the 250-year forecast period.

In the second option (Option 2) the licensee assumed that the full -old-growth retention target did not have to be met immediately. Furthermore, the licensee assumed that harvesting could occur in areas reserved in Option 1 for wildlife tree patches and old-growth management in order to limit the impact on timber supply. In this option, the even flow harvest level was 142 141 cubic metres per year.

In reviewing the assumptions used in Options 1 and 2, I note that Option 1 better reflects current management on TFL 35 and represents the base case as discussed in "The role of the base case". I will discuss landscape-level biodiversity, the KLRMP and the associated Higher Level Plan (HLP) Order in greater detail under the appropriate headings in this rationale.

In the timber supply analysis, sensitivity analyses were provided to assess the risk to timber supply resulting from uncertainty in data assumptions and estimates, and these have assisted me in considering the factors leading to my determination.

As discussed throughout this rationale, and in consideration of the items described above, I am satisfied that the information presented to me provides an adequate basis from which I can assess the timber supply for TFL 35 for this determination.

Consideration of Factors as Required by Section 8 of the Forest Act

Section 8 (8)

In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area,

Land base contributing to timber harvesting

- general comments

As part of the process used to define the timber harvesting land base in the timber supply analysis, a series of deductions is made from the productive forest land base. These deductions account for the factors that effectively reduce the suitability or availability of the productive forest area for harvest, for ecological, economic or social (e.g., parks) reasons. For TFL 35 these reductions result in a long-term timber harvesting land base of 31 172 hectares, or approximately 88 percent of the Crown productive forest land. This is 98 hectares larger than the total land base identified in MP No. 8 due to the map base conversion to the new North American Datum (NAD) 83 standard and finalization of the Porcupine Meadows Provincial Park boundaries.

I have considered all of the deductions applied in the derivation of the timber harvesting land base. In this document I will not discuss deductions with which I completely agree, namely those for parks, economic and physical operability, and deciduous-leading stands. The other deductions are discussed below.

- non-forested and non-productive areas

For TFL 35, areas identified in the forest cover inventory as non-forested include swamp, alpine areas, lakes, rock, and other non-productive areas. To account for these, the licensee excluded 1114 hectares from the total TFL 35 land base.

It is reasonable to exclude from the timber harvesting land base sites that have very low timber values due to low site, as they do not have the current or future potential of producing a commercially viable stand of timber. These same areas may exhibit other characteristics that can help meet forest cover objectives for old growth or visual quality. In 1999, the licensee undertook a terrestrial ecosystem mapping (TEM) project that resulted in all or part of some stands being reclassified as non-productive (NP) or too low in productivity to support commercially viable timber.

On the basis of the 1999 TEM, the licensee identified a total of 602 hectares of NP sites, of which 145 hectares were excluded from the timber harvesting land base after previous reductions. Stands in areas classified as NP were assumed not to exhibit old-growth characteristics and to have no potential to do so in the future. Sites classified as having

low productivity totalled 456 hectares, of which 216 hectares were excluded from the timber harvesting land base after other area exclusions. The licensee assumed that all "low productivity" stands will eventually exhibit desirable old-growth stand characteristics; therefore, they were assumed to contribute to forest cover objectives for old growth.

BCFS district and MWLAP staff questioned the reliability of the 1999 TEM and the licensee's assumption that all low site productivity sites will develop stands with old-growth characteristics. BCFS district staff subsequently reviewed the TEM that had been updated in 2001. Based upon their review, they concluded that the original mapping required revision; however, the overall average adjusted site index for the TFL was relatively unchanged. Therefore, they believe that any discrepancies in the assumptions regarding low productivity sites should have no impact on the timber supply projected in the base case.

Based upon my review and discussion of the information regarding non-forested and non-productive areas with BCFS and MWLAP staff, I note that there is some uncertainty regarding the extent of the area that may eventually contribute to forest cover objectives and I encourage the licensee to clarify this issue prior to the next timber supply analysis. For this determination, I conclude that the assumptions used in the base case were based upon the best available information and are therefore suitable for use in this determination. In any event, I note that areas with low site productivity represent less than 1 percent of the timber harvesting land base and are unlikely to have any significant impact on timber supply.

- marginally-merchantable stands

Based upon a review of its current forest development plan, the licensee assumed that 2393 hectares, or 8 percent of the timber harvesting land base, consisted of marginally-merchantable stands. These stands included:

- non-pine leading stands older than 100 years but less than 19.5 metres in height;
- pine-leading stands older than 80 years but less than 19.5 metres in height; and
- pine stands that have been disturbed or have low stocking and/or small trees.

Further to the chief forester's instruction in the rationale for his 1996 AAC determination, the licensee tracked its harvesting performance in marginally merchantable stands. In 1997, 6 percent of the total volume harvested on TFL 35 originated in these stand types, whereas, in 1998 and 1999, 0.8 percent and 0.3 percent, respectively, of the volume harvested originated in these stands. The licensee notes that during this period its harvest priority was to salvage wood from stands infested with mountain pine beetle.

I have reviewed the licensee's performance in marginally-merchantable stands and have discussed the implications with BCFS Kamloops district staff. Because the proportion of the total harvest in recent years is significantly less than the contribution that these stands are assumed to make to the timber harvesting land base, I am concerned about the potential for over-estimating the size of the timber harvesting land base. I acknowledge that the licensee has committed to report annually on its performance in marginally-merchantable stands and will further discuss this factor in my "Reasons for Decision".

- environmentally sensitive areas and terrain stability

An environmentally sensitive area (ESA) is an area identified during a forest inventory that is particularly sensitive to disturbance and/or is significantly valuable for resources other than timber. ESA information was originally used to identify areas to exclude in deriving the timber harvesting land base where more specific or detailed information was not available about a particular forest resource. For TFL 35, terrain stability mapping and a recreation inventory have replaced the ESA information.

According to the 1997 recreation inventory, areas that were identified as being important for recreation are generally located around lakes and beside streams. No areas were identified that needed to be specifically excluded from the timber harvesting land base to protect the recreation resource. However, the licensee did model a 200-metre riparian management zone around all lakes in the TFL to address recreation, visual, and riparian concerns. BCFS district staff confirm that the 200-metre riparian management zone around lakes is current practice on the TFL and that there is significant overlap between areas of high recreational value and areas in which timber harvesting is already constrained to manage for visual quality objectives. Furthermore, they note that similar assumptions have been incorporated in the timber supply analysis being undertaken in the Kamloops TSA.

I am satisfied that the accounting for the recreation resource in the base case is based on the recently completed recreation inventory, is reflective of current practice and is therefore appropriate for use in this determination.

The licensee recently completed terrain stability mapping to identify areas where soil stability concerns may affect plans for timber harvesting. Unstable areas were classified as having either a moderate likelihood of landslide following harvesting or road construction (terrain class IV) or a very high likelihood of landslide initiation following harvest or road construction (terrain class V). In its analysis, the licensee assumed that all stands classified as terrain class V (293 hectares) would be excluded from the timber harvesting land base; whereas, all stands classified as terrain class IV would be included (2339 hectares).

BCFS staff indicate that there has been little harvesting in areas classified as terrain class IV. They further inform me that in the timber supply analysis for the surrounding Kamloops TSA, areas classified as terrain class IV have been completely excluded from the timber harvesting land base. The licensee contends that stands on the steep valley sides could be harvested using cable long-line systems without adversely affecting soil stability. It indicated that in its current forest development plan (FDP) that it intends to undertake a small amount of cable harvesting of stands in terrain class IV.

I have reviewed and discussed the information regarding environmentally sensitive areas and terrain stability with BCFS staff and I conclude that the extent to which stands on terrain class IV contribute to timber supply is uncertain. I note that the licensee is proposing to harvest in areas classified as terrain class IV in its current FDP; however, I am also aware that to date there has been very little harvesting in these areas. I note that if these areas continue to be avoided, they may well contribute to meeting old-growth retention targets. I accept the assumptions used in the base case as adequate for use in this determination; however, I expect the licensee to document its performance in terrain

class IV so that it can be reflected in the next timber supply analysis. I will speak to this under "Reasons for Decision".

- existing and future roads, trails and landings

In the timber supply analysis, a percentage of the productive forest was excluded from the timber harvesting land base to account for the losses resulting from the construction of roads, trails and landings. Separate estimates were made for existing and for future roads, trails and landings, to reflect both current access and anticipated road network requirements over time.

To account for existing roads and trails the licensee used a geographic information system (GIS) to determine the length by classification of existing roads and trails on the TFL. To determine the area covered by roads and trails, licensee staff applied average road width buffers to each road class identified in the GIS file. The average road width estimates used in this analysis, which ranged from 25 metres for main roads to 5 metres for trails, were estimated in the field by licensee staff. In total, 820 hectares were excluded from the timber harvesting land base to account for existing roads and trails.

BCFS staff have reviewed the methodology used to account for existing roads and trails and indicate that the road width buffer applied to main roads (i.e., 25 metres) was considerably wider than the 13-metre wide buffer assumed in the timber supply analysis for the Kamloops TSA. However, they note that application of a 13-metre wide buffer instead of a 25-metre wide buffer to the existing main roads would result in only 34 hectares less being excluded from the timber harvesting land base.

According to the licensee, TFL 35 will be fully roaded by the end of its current FDP period. Applying the road width buffers assumed for existing roads to the roads projected in the licensee's FDP resulted in the exclusion of an additional 75 hectares from the timber harvesting land base to account for future roads.

Existing and future productivity losses for rehabilitated in-block roads and trails were estimated to be 0.35 percent. The licensee derived this value by reducing the preliminary estimate assumed in the Kamloops TSA timber supply data package for roads and landings (5.7 percent) by 0.54 percent and 1.68 percent to account for roads outside of blocks and landings, respectively. Therefore, in-block roads and trails were assumed to occupy 3.48 percent of the timber harvesting land base. Assuming that 90 percent of its in-block roads and trails could be fully rehabilitated, a final net volume reduction of 0.35 percent was applied to the managed stand yields assumed in the analysis.

In its 1996 timber supply analysis, the licensee excluded 3.1 percent of the productive forest from the timber harvesting land base to account for the productivity losses associated with landings. For this analysis, based upon an assessment of its landing rehabilitation experience, the licensee assumed that only 10 percent of the landing area originally excluded from the timber harvesting land base would permanently remain non-productive. For the remaining 90 percent of landings the licensee assumed that 60 percent of the original site productivity would be recovered. As a result, to account for productivity losses associated with landings, the licensee reduced all the regenerating stand yield table volumes by 1.43 percent.

According to the licensee, it reviewed sample plots from its site index adjustment study (discussed below under *site productivity estimates*) and found that 33 of 335 plots were located in previously disturbed areas. When it compared the productivity of these sites to the productivity of undisturbed sites, the licensee found no statistically significant difference. Therefore, for this analysis the licensee did not include a specific productivity loss to account for within-block disturbance not associated with roads, trails or landings.

I have reviewed and discussed the information regarding existing and future roads, trails and landings with BCFS staff. I note that there is a difference between the road width estimates applied by the licensee in the base case and the road widths assumed in the timber supply analysis for the Kamloops TSA. However, I am aware that application of the 13-metre wide road width buffer only resulted in a 34 hectare difference in the size of the timber harvesting land base. Based upon my review, I conclude that a difference of this magnitude has a negligible, if any, impact on the timber supply projected in the base case.

I am also aware that the BCFS Kamloops Regional Pedologist, based on extensive field studies elsewhere, suggests that the licensee's estimates of within-block disturbance are too low. He also recommends that disturbed areas be assigned a lower site index. Whether or not this is the case, I am aware that any potential productivity losses that have not been addressed in the base case would have no impact on short- to mid-term timber supply. For this determination I accept the assumptions regarding existing and future roads, trails and landings applied in the base case. However, I encourage the licensee and BCFS staff to review and discuss road width and within-block disturbance estimates and to incorporate any new findings in the next timber supply analysis.

Existing Forest Inventory

The inventory data used for the timber supply analysis for TFL 35 is based on a 1978 inventory updated for harvesting and silviculture activities to December 31, 1999. Conversion of the current inventory data to the terrestrial resources inventory mapping (TRIM) NAD 83 standard in 1994 resulted in an increase of 98 hectares in the gross area of the TFL.

An inventory audit, which was undertaken by BCFS Resources Inventory Branch in 1995, found no statistically significant difference between the average mature volume per hectare indicated in the inventory and that measured in the sample plots.

Terrestrial Ecosystem Mapping (TEM) was completed during the term of MP No. 8 and has been incorporated into the timber supply analysis. I note that the licensee has committed in its proposed MP No. 9 to upgrade and enhance the current TEM database and acknowledge that much of this work has already been completed.

I have considered the information about the forest inventory, and am satisfied that the assumptions used in the base case were based upon the best available information and are therefore acceptable for use in this determination.

I have considered the aggregation procedures, existing stand yields, harvest profile, and harvest sequencing and am satisfied that the base case assumptions were appropriate for use in this determination.

Expected rate of growth

I have reviewed the information regarding managed stand yields and minimum merchantability standards and am satisfied that the assumptions in the analysis for these factors were appropriate.

- site productivity estimates

Inventory data includes estimates of site productivity for each forest stand, expressed in terms of a site index. The site index is based on the stand's height as a function of its age. The productivity of a site largely determines how quickly trees grow. This in turn affects the time seedlings will take to reach green-up conditions, the volume of timber that can be produced, and the ages at which a stand will satisfy mature forest cover requirements and reach a merchantable size.

In general, in British Columbia, it has been found that site indices determined from younger stands (i.e., less than 31 years old), and older stands (i.e., over 150 years old) may not accurately reflect potential site productivity. In young stands, growth often depends as much on recent weather, stocking density, and competition from other vegetation, as it does on site quality. In old stands, where stocking density has not been controlled, the trees used to measure site productivity may have grown under intense competition or may have been damaged, and therefore may not reflect the true growing potential of the site. This has been verified in several areas of the province where studies—such as the Old-Growth Site Index (OGSI) 'paired plot' project and the 'veteran' study—as well as results from using the Site Index Biogeoclimatic Ecosystem Classification System (SIBEC) suggest that actual site indices may be higher than those indicated by existing data from old-growth forests. In recent years it has been concluded from such studies that site productivity has generally been underestimated by older inventories; managed stands tend to grow faster than projected by inventory-based site index estimates from old-growth stands.

The TFL 35 base case analysis employed new estimates of site indices developed by J.S. Thrower and Associates Ltd. Preliminary site index estimates were developed for lodgepole pine, spruce, subalpine fir, and Douglas-fir, based upon tree heights and ages from 64 randomly selected points in the sample population. Those estimates were assigned to each TEM polygon, and then adjusted to reflect field sampling of pine-leading stands between 11 and 80 years of age, and spruce-leading stands between 18 and 80 years of age. The adjustments to the estimated indices for pine, spruce, and subalpine fir were based directly on the field sampling. Because of sampling limitations, adjustments to the estimated site indices for Douglas-fir were based upon standard BCFS species conversion formulas applied to the adjusted estimates for pine and spruce on the TFL area.

I note that the J.S. Thrower report includes a caution that the new spruce site index estimates "may be slightly over-estimated ... [because] ... height-growth patterns in young [spruce] stands are more linear in early years than in natural stands from which the data were taken to develop the MoF growth intercept equations". The report recommends that the issue of this potential over-estimation be studied further. The size of the regenerating spruce area is 1206 hectares.

The J.S. Thrower report also notes that the adjusted site indices for high-elevation areas may be less reliable than those for lower-elevation areas because the former were based on relatively few samples in higher elevation areas, and on extrapolation of sample data from lower elevations. To the extent that this may be the case, any over- or under-estimate would apply to approximately 5500 hectares (or 18 percent) of the timber harvesting landbase.

The licensee provided a sensitivity analysis to examine the impact of uncertainty in site productivity estimates on the base case timber supply. Increasing the site index of managed stands by 3 metres resulted in a 0.1 percent increase in the projected timber supply to 125 368 cubic metres per year; whereas, decreasing the site index of managed stands by 3 metres resulted in a 6.4 percent decrease in the projected timber supply to 117 192 cubic metres per year.

I have reviewed and discussed the information regarding site productivity estimates with BCFS staff and I recognize the concern that spruce site indices may be slightly over-estimated. To the extent that the site indices for higher-elevation stands, which represent approximately 18 percent of the timber harvesting land base, are unreliable, I conclude that this is a minor concern. I am aware that modelling a 3-metre lower site index for regenerated stands resulted in an approximately 8000 cubic metre per year decrease in the timber supply projected in the base case, but do not believe that any error in site index estimates approaches this magnitude of impact. In any case, this uncertainty relates to long-term timber supply, and I will discuss this further under "Reasons for decision".

- operational adjustment factors

TIPSY projections are initially based on ideal conditions, assuming full site occupancy and the absence of pests, diseases, and significant brush competition in the stand. Certain operational conditions, such as less than ideal tree distribution, small non-productive areas, endemic pests and diseases, or age dependent factors such as decay, waste, and breakage cause actual yields to be less than the theoretical TIPSY yields over time. Operational adjustment factors (OAFs) are applied to yields generated using TIPSY to account for losses of timber volume resulting from these operational conditions. OAF1 accounts for factors affecting the yield curve across all ages, including small stand openings, tree distribution, endemic pests, and other factors. OAF2 accounts for decay, waste, and breakage.

During the term of MP No. 8, the licensee studied the factors underlying the two OAFs. For OAF1, the licensee indicated that because TEM accurately delineates non-productive areas and because of the licensee's higher density stand management, the standard allowance for OAF1 could be reduced. It also suggested that the provincial estimates for

risk to other losses such as to endemic pests are too high for this TFL. Consequently, it recommended an OAF1 of 7 percent for "enhanced" managed stands and 8 percent for the remaining managed stands.

BCFS Research Branch staff reviewed the information presented by the licensee and concluded that the evidence for reducing the OAFs was inconclusive. Following discussions with BCFS staff, the licensee used an OAF1 of 10 percent for "enhanced" management stands and 11 percent for the remaining managed stands in the base case timber supply analysis.

In order to derive values for OAF2, the licensee reviewed provincial decay, waste, and breakage factors and adjusted the standard provincial factor of 5 percent to 3.3 percent, 3.9 percent, and 3.8 percent for lodgepole pine, Douglas-fir and spruce, respectively. BCFS Research Branch staff reviewed the licensee's estimates for OAF2 and agreed with the use of these estimates.

In reviewing the information presented to me regarding OAFs, I note that the licensee based its OAF values on studies that were completed during MP No. 8. Although the final factors used in the base case are the product of negotiation as much as science, I accept them as the best available information. I encourage the licensee to collect empirical data in support of the OAFs that will be used in the next timber supply analysis.

(ii) the expected time that it will take the forest to become re-established on the area following denudation,

Expected time for forest to be re-established following harvest

I have reviewed the information regarding regeneration delay, not-satisfactorily-restocked areas, and impediments to regeneration and am satisfied that the assumptions in the analysis for these factors were appropriate for use in this determination.

- regeneration strategies

According to the licensee, prior to 1978 it relied on natural regeneration to re-establish stands that had been harvested by either clear-cut or diameter-limit. From 1978 to 1989, it increased its reliance on planting with prompt site preparation, began to identify and restock not satisfactorily restocked (NSR) areas, and incorporated integrated resource management objectives in its operational planning. Since 1990, the licensee has instituted its "enhanced forest management program", which includes the use of higher stocking levels, immediate site preparation, and significantly improved planting stock. For the future, the licensee is developing regeneration strategies for each combination of productivity group and site series. These new strategies reflect its current practice of increasing mixed-species planting in accordance with higher level plan direction, to achieve management objectives such as enhancing wildlife habitat, and to improve the insect resistance of stands.

BCFS Timber Supply Branch staff confirm that the practice of mixed-species planting was not reflected in the base case. They indicate that planting spruce and pine in areas that formerly would have been regenerated to pure pine stands may increase the time required

to attain green-up, free-to-grow status, and minimum harvest ages and this may result in a decrease in the mid-term timber supply relative to the base case.

I concur with BCFS staff that the licensee's practice of mixed species regeneration may result in mid-term timber supply impacts that have not been adequately assessed in this timber supply analysis. I will speak to this under "Reasons for Decision".

(iii)silviculture treatments to be applied to the area,

Silvicultural treatments to be applied

I have reviewed the information regarding use of select seed, fertilization, juvenile spacing, stand conversion, silvicultural systems, and commercial thinning, and I am satisfied that the base case assumptions for these factors were appropriate for use in this determination.

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

Utilization standards

Utilization standards define for all tree species the maximum allowable stump height, and the minimum diameter at breast height (dbh), minimum top diameter, and minimum log length of trees that must be utilized when harvesting an area. For this analysis, the licensee used the utilization standards outlined in its TFL agreement except for the minimum top diameter for cedar trees over the age of 141 years. For these, a 10-centimetre minimum top diameter was assumed instead of the 15-centimetre top diameter specified in the agreement. According to the licensee, this assumption was made in order to simplify yield estimation. BCFS staff noted that while this assumption results in a slight over-estimation of cedar volume, the impact on timber supply is negligible.

Based upon my review and discussion with BCFS staff, I accept the utilization assumptions used in the base case as adequate for use in this determination.

Decay, waste and breakage

I have reviewed the information regarding the decay, waste, and breakage factors assumed in the base case for TFL 35, and am satisfied that this factor was modelled appropriately in the base case.

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production,

Integrated resource management objectives

The Ministry of Forests is required under the *Ministry of Forests Act* to manage, protect and conserve the forest and range resources of the Crown and to plan the use of these resources so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and

other natural resource values are co-ordinated and integrated. Accordingly, the extent to which integrated resource management (IRM) objectives for various forest resources and values affect timber supply must be considered in AAC determinations.

I have reviewed the information regarding cultural heritage resources, recreation, water resources, visually sensitive areas, and adjacency issues in the general management zone assumed in the analysis for TFL 35, and I am satisfied that these factors were appropriately modelled in the base case.

- range

There are three range units with five range tenures that overlay the TFL 35 land base. According to the licensee, its range objective is to maintain the current 2475 animal unit months of range capacity throughout the term of MP No. 9. MWLAP staff are concerned that the supply of forage could decrease as a result of the more aggressive reforestation strategies being employed by the licensee. However, I note that there is no information to indicate the degree and timing of this impact and it is uncertain if there would be any effect on timber supply. Furthermore, I note that range resources are managed, and issues are resolved, at the operational planning level. My expectation is that if this issue does become a factor affecting timber supply, specific information will be raised as part of the next timber supply analysis. For this determination, I accept that the best available information concerning range resources was incorporated in the base case.

- wildlife habitat and mule deer winter range

According to the licensee, it has been managing for wildlife habitat and diversity since the development of its *Operational Harvesting and Reforestation Guidelines for Overall Maintenance of Fish and Wildlife Habitat on TFL 35 and Adjacent Study Areas* (Fish and Wildlife Plan, Weyerhaeuser Company Limited 1991). Because regulatory and policy changes since 1991 have superseded the majority of strategies and tactics identified in the plan, the licensee indicates that only certain portions are still relevant.

The KLRMP identified 780 hectares within TFL 35 as critical deer winter range (DWR) where the objective is to enhance forage production and maintain the habitat requirements of these ungulates. In the base case the licensee incorporated the two forest cover related strategies for DWR from the KLRMP. According to these strategies, at least 25 percent of the forested area in DWR must be maintained in thermal cover, which, for the base case, the licensee assumed to be stands greater than 20 metres in height. In addition, clearcuts may not exceed five hectares where uneven aged management cannot be practised. To account for this strategy, in the base case the licensee assumed that a maximum of 20 percent of DWR areas may be covered with stands less than or equal to a green-up height of 3 metres.

In its 1991 Fish and Wildlife plan, Weyerhaeuser identified eleven special wildlife management areas covering 844 hectares of productive forest on TFL 35. In these special wildlife management areas the licensee commits in MP No. 9 to maintain at least 25 percent of pine stands older than 80 years and all other stands older than 100 years. To reflect this commitment, the licensee applied these forest cover objectives in the base case.

The KLRMP also identified critical moose winter range where the objective is to maintain thermal and visual cover for moose and to enhance browse production. No specific forest cover related strategies were provided in the KLRMP for this area and none was assumed in the base case. The licensee indicated that the objectives and strategies detailed in the KLRMP would be managed operationally through the FDP and Silviculture Prescriptions.

The licensee provided a sensitivity analysis to assess the impact on timber supply of increasing and decreasing by 5 percent the minimum percentage of stands required to be at least 20 metres in height. Neither of these changes affected timber supply.

I have reviewed and discussed with Kamloops Forest District and MWLAP staff the assumptions applied in the base case to account for the management of ungulates on TFL 35. I am satisfied that the base case adequately accounts for the strategies detailed in the KLRMP and the commitments made by the licensee in MP No. 9 to manage the special wildlife management areas. On this account the base case reflects the best available information for this determination.

- identified wildlife

For wildlife species considered to be at risk, the Conservation Data Centre of British Columbia maintains forest district tracking lists. Each list names the species and plant associations considered to be at risk (e.g., endangered, threatened, vulnerable, or sensitive) and which are known to occur, strongly expected to occur, or which have occurred in the past within a given forest district. The Identified Wildlife Management Strategy (IWMS) addresses habitat management for specific species considered to be at risk.

Identified wildlife refers to species at risk (red- and blue-listed) as well as regionally significant species that are potentially affected by forest management activities and that may not have been adequately accounted for through existing management strategies. While the biodiversity and riparian provisions of the Forest Practices Code are intended to provide for the needs of most wildlife species, some species that are considered to be "at risk" require special management practices. The Province's *Identified Wildlife Management Strategy* (IWMS)—released in February 1999—provides mechanisms for managing critical habitat for identified wildlife species including Wildlife Habitat Areas (WHAs), General Wildlife Measures (GWMs) and higher level plan recommendations.

The licensee indicated that it has not identified any red-or blue-listed species that would require the establishment of Wildlife Habitat Areas (WHAs) on TFL 35. However, identified wildlife that could potentially be present on TFL 35 include 11 blue-listed species associated with forested ecosystems and 4 blue-listed species associated with grassland ecosystems. MWLAP staff indicated that, of these species, goshawk is the only one that may require the establishment of WHAs. However, the likelihood that this will occur is low.

During the review of MP No. 8, the chief forester commented that, as more detailed mapping became available, the licensee should reconcile its wildlife planning to ensure it meets current management strategies. According to the licensee, it is committed to working with MWLAP staff to develop new TEM-based habitat capability mapping for

moose, mule deer, goshawk, and martin and to refine habitat boundaries and management regimes to ensure they are consistent with the KLRMP and management objectives of TFL 35.

I have reviewed the information regarding identified wildlife. I note that there is a low probability that some accounting for goshawk management may be necessary in the future and that accounting for other species is not likely to affect timber supply. Furthermore, I note that accounting for identified wildlife species may well be accomplished through the placement of old-growth management areas (see *landscape-level biodiversity*) and wildlife tree patches (see *stand-level biodiversity*). Therefore, I accept that the assumptions for identified wildlife in the base case are suitable for use in this determination.

- riparian habitat

Riparian habitats occur along streams and around lakes and wetlands. The Forest Practices Code requires the establishment of riparian reserve zones (RRZs) that exclude timber harvesting, and riparian management zones (RMZs) that restrict timber harvesting in order to protect riparian and aquatic habitats. For each stream, lake or wetland, the RRZ and RMZ make up the entire riparian management area. Stream riparian classes are described in the *Riparian Management Area Guidebook* and are determined based on the presence of fish, occurrence in a community watershed, and average channel-width criteria. The stream class is used to estimate the area required to be retained in the RRZ and the area or volume to be managed as the RMZ.

To account for management in the riparian zones in the base case, the licensee used the existing stream classifications for TFL 35 and the reserve and management zone widths from the Forest Practices Code *Operational Planning Regulation*. In keeping with the standard management procedures for the Kamloops Forest District, the licensee assumed a 10-metre RRZ and a 20-metre RMZ for all S4 fish-bearing streams. For lakes, a 10-metre reserve zone and a 190-metre lakeshore management zone were applied to all Class B, C, and D lakes as per the *Kamloops/Clearwater Lakeshore Harvesting Guidelines*, which were endorsed in the KLRMP. The actual areas associated with the reserve and management zones were calculated using standard GIS procedures and adjusted to account for overlapping requirements. In total, the licensee excluded 735 hectares of RRZ from the timber harvesting land base.

To account for trees retained in the RMZ following harvesting, the licensee reviewed several recent cutblocks to estimate current performance in the RMZ. Using this information, the licensee calculated a volume reduction factor equalling 0.25 percent to be applied to all yield tables used in the timber supply analysis. Numerous steeply entrenched streams transect the plateau that is the prevalent terrain feature on TFL 35. According to former Ministry of Environment, Lands, and Parks (MELP) staff, the RMZ along these streams, and in some cases areas outside these RMZ, is often not harvested. They contend that these areas were not adequately represented in the sample used by the licensee to estimate the yield reduction factor for the base case. Using TFL-specific information, the former MELP staff estimated that the licensee underestimated the size of the RMZs by as much as 106 hectares, 114 hectares, and 220 hectares for S2, S3, and

S4 to S6 streams, respectively. However, they acknowledge that some of the area currently associated with RMZs may be suitable for establishing OGMAs (see *landscape-level biodiversity*) and may serve as part of the wildlife tree patch requirement.

BCFS staff estimate that reducing the timber harvesting land base by the additional RMZ area estimated by former MELP staff would reduce the harvest level projected in the base case by approximately 1400 cubic metres per year (1 percent).

For this determination, I am aware that the impact on timber supply resulting from management practices in the RMZ may have been underestimated in the base case. However, I also note that areas identified as RMZ may overlap with areas to be retained as OGMAs and wildlife tree patches. The exact extent of this overlap is uncertain until the delineation of OGMAs on TFL 35 has been completed and an assessment has been made of wildlife tree patches and RMZs. For this determination, I conclude that the assumptions applied in the base case regarding riparian habitat are adequate. For the next determination I encourage the licensee to review its procedures for quantifying the impacts on timber supply of management in the RMZ and to address the concerns raised in this regard by the former MELP staff.

- *biodiversity*

Biodiversity is defined as the full range of living organisms, in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems and the evolutionary and functional processes that link them. Under the Forest Practices Code biodiversity in a given management unit is assessed and managed at both the landscape and stand levels.

landscape-level biodiversity

Achieving landscape-level biodiversity objectives involves maintaining forests with a variety of patch sizes, seral stages, and forest stand attributes and structures, across a variety of ecosystems and landscapes. A major consideration in managing for biodiversity at the landscape level is leaving sufficient and reasonably located patches of old-growth forests for species that are dependent on or are strongly associated with old-growth forests. Although some general forest management practices can broadly accommodate the needs of most ecosystems, more often a variety of practices is needed to represent the different natural disturbance patterns under which ecosystems have evolved.

The delineation and formal designation of 'landscape units' is a key component of a sub-regional biodiversity management strategy. The KLRMP provides strategic direction for managing sub-regional landscape-level biodiversity. The KLRMP— declared by written order as a higher level plan (HLP) under the Forest Practices Code in 1996—identifies landscape units and preliminary biodiversity emphasis options (BEOs) as well as associated objectives and strategies for the KLRMP area, including TFL 35. Objectives include " to conserve the diversity and abundance of native species and their habitats throughout the Kamloops LRMP, following upon direction provided by the Forest Practices Code Biodiversity Guidebook". Associated strategies include "limit the impact

of landscape unit biodiversity emphasis options to no more than 4 percent of the level of timber harvesting in the LRMP over the short and long term".

The *Biodiversity Guidebook,* the *Landscape Unit Planning Guide* and *Higher Level Plans: Policy and Procedures* all provide policy and guidance on management for landscape-level biodiversity. The *Landscape Unit Planning Guide* provides guidance on which components of the full range of recommendations included in the *Biodiversity Guidebook* should be implemented to achieve a balance of forest management objectives. The *Landscape Unit Planning Guide* contains forest cover objectives for old seral forest that are recommended for application at the biogeoclimatic variant level within each landscape unit. The recommendations are stated as a minimum percentage of the productive forest to be retained in stands above a specified age that varies by ecosystem type. The guide also allows the old seral requirement to be phased in over time in landscape units with a lower biodiversity emphasis.

TFL 35 covers a portion of the Skull landscape unit, which, under the KLRMP, was assigned a preliminary lower BEO. The licensee and the Kamloops Forest District manager interpret differently the intent of the 4 percent limit on harvest level reductions resulting from the implementation of landscape-level biodiversity management. These interpretations, in turn, lead to differing conclusions on whether or not the old seral requirement should be phased in over time in a landscape unit with a lower BEO.

The licensee asserts that the 4 percent limit applies to individual management units within the area covered by the HLP order. Therefore, to limit the impact on TFL 35, the old seral target could be phased in over time. Conversely, the district manager asserts that the limit applies as an average over the entire area covered by the KLRMP. Therefore, the old seral target must be met as soon as possible and the timber supply impact on TFL 35 may be greater than 4 percent. In a letter dated December 20, 2000, the district manager reaffirmed this position, indicating that "the three-thirds old-growth management area implementation reflects current operational management requirements and should be used in any base case analysis timber supply calculations for TFL 35 in the Kamloops District".

I note that under section 4.3 of the KLRMP, entitled *Interpretation and Appeal*, concerns regarding the interpretation of land-use objectives and strategies are to be addressed in writing by the responsible manager, in this case the district manager. If the matter is not satisfactorily resolved, the concern must be forwarded to the Interagency Management Committee (IAMC) for resolution. I further note that the district manager has addressed in writing the question of the interpretation of the 4 percent harvest level impact and that the licensee has not yet brought its concerns to the attention of the IAMC.

In the analysis, the licensee presented two harvest forecasts reflecting the differing views of the district manager and the licensee. For the first forecast (Option 1) the licensee assumed that the old seral target specified for a lower BEO needed to be met as soon as possible in accordance with the instructions in the district manager's letter. To attain the targets, in the model the draft old-growth management areas (OGMAs) were considered first for their contribution to the targets, followed by stands older than 250 years and then

by stands between age 140 years and 250 years outside of the OGMAs. In this forecast, a harvest level of 125 200 cubic metres per year was maintained throughout the 250-year forecast period.

For the second option (Option 2) the licensee assumed that the entire old seral target specified for a lower BEO did not have to be met as soon as possible if that would impact timber supply by more than 4 percent. Instead, the licensee assumed the amount of old seral forest could be reduced to one-third of the target and then recruited to meet the entire requirement in three rotations. The licensee also assumed that harvesting could occur in areas otherwise reserved for wildlife tree patches and the draft OGMAs to the extent necessary to effect an impact of no more than 4 percent. In this forecast, the even flow harvest level was 142 141 cubic metres per year, which represents an increase of 16 941 cubic metres per year, or 12 percent, above the harvest level projected in the base case.

The licensee prepared a sensitivity analysis to examine the impact of reducing the old seral stage requirements to one-third in the first rotation, with the full requirement being phased in over the next two rotations (140 years). In this analysis, the even-flow harvest level increased by approximately 5 percent. In addition, the licensee provided a sensitivity analysis to assess the effect on timber supply of applying the mature-plus-old seral stage requirement and of reducing the old-seral age in Natural Disturbance Type 3 to 120 years from 140 years. Relative to the base case, the forecast was unchanged when applying the mature-plus-old seral stage constraint, and was increased by 0.7 percent when the old seral stage requirement was reduced.

Based upon my review and discussions of the information regarding landscape-level biodiversity management on TFL 35, I am especially mindful of the KLRMP objective of conserving "the diversity and abundance of native species and their habitats *throughout the Kamloops LRMP...*" (emphasis added) and also note that the KLRMP provides direction to the district manager on the interpretation of certain of its land- use objectives and strategies. I further note that any concerns with the district manager's interpretations are to be resolved by the IAMC. The district manager has made his interpretation of the 4 percent impact known and the licensee may forward its concern regarding this interpretation to the IAMC. Until this committee provides its direction on this issue, the district manager's interpretation stands. Therefore, I accept the assumptions used in the base case regarding landscape-level biodiversity management as the best available information and suitable for use in this determination. I encourage the licensee to work with BCFS and Ministry of Sustainable Resource Management (MSRM) staff to bring certainty to this issue by completing the delineation of OGMAs on the landscape. The results of that work will then be reflected in the next determination.

stand-level biodiversity

Stand-level biodiversity is managed by retaining reserves of mature timber, or wildlife tree patches (WTPs), within cutblocks and in adjacent inoperable and other retained areas to provide structural diversity and wildlife habitat. The *Landscape Unit Planning Guide* outlines procedures and makes recommendations on the proportion of a cutblock that is required for wildlife tree retention.

For this analysis, the licensee excluded from the timber harvesting land base the area of WTPs that are currently identified on TFL 35. A total of 177.6 hectares were excluded on this account after other reductions.

To estimate the area that will be needed to satisfy future WTP requirements, the licensee used a map-based study that considered the location of non-contributing areas, currently existing WTPs and their estimated average diameter, and the maximum distance (500 metres) between WTPs recommended in the *Biodiversity Guidebook*. According to this study, future WTPs will cover an additional 155.7 hectares, or 0.5 percent, of the timber harvesting land base. Therefore the licensee reduced by 0.5 percent the volumes projected in the yield tables for stands regenerating in the future.

I discussed with BCFS staff the method used by the licensee to estimate the area needed for WTPs and I find the approach to be innovative and reflective of the current distribution of non-contributing areas on the TFL. As such, I find the assumptions used in the base case to be the best available information and suitable for use in this determination.

(vi) **any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber;**

Other information

- Kamloops Land and Resource Management Plan

In addition to the *Ministry of Forests Act* and the *Forest Practices Code of British Columbia* Act, as stated earlier, the *Kamloops Land and Resource Management Plan* (KLRMP) provides regional planning guidance to the management of forest and range resources in the region.

The KLRMP area covers approximately 2.7 million hectares of Crown land, including the private land within TFLs. It was approved by government in July 1995. In January 1996 the plan was declared by written order as a higher level plan (HLP) under the Forest Practices Code. The HLP order and subsequent amendments require that operational plans be consistent with the management strategies and objectives contained within the KLRMP.

Implementation of the KLRMP is ongoing with guidance from the Kamloops Interagency Management Committee. I note the licensee's commitment in its proposed MP No. 9 to the goals of the KLRMP.

Overall in making my determination, I have been mindful of the land-use planning decisions affecting TFL 35 and I expect that future determinations will reflect ongoing confirmation and clarification of the KLRMP.

- *Twenty-year plan*

The licensee prepared its twenty-year plan using the spatially-explicit version of COMPLAN (see "Timber supply analysis").

The harvest level used in the twenty-year plan was based on the licensee's proposed harvest level for TFL 35 of 136 455 cubic metres per year. The licensee derived this proposed level by deducting the 4 percent impact discussed above under '*landscape-level biodiversity*' from the harvest level attained in the licensee's Option 2. The twenty year plan was based on the same assumptions used in the licensee's Option 2, namely that WTPs and the draft OGMAs were assumed to be available for harvest and the old seral forest target did not need to be met immediately; rather the old seral forest requirement could be phased in over time. The initial 5-year period of the TYP included the blocks and future roads identified in the current forest development plan.

BCFS district staff reviewed the twenty-year plan and are satisfied that the harvest level projected in the base case (125 200 cubic metres per year) can be achieved for a period of 20 years.

The district manager accepted the licensee's twenty-year plan on August 7, 2001.

I have reviewed and discussed the information regarding the licensee's twenty-year plan with BCFS staff. I am satisfied that the first two decades of the base case harvest projection is operationally attainable, although not necessarily in the precise locations indicated in the plan. I have considered this information in my determination of the AAC.

(b) the short and long-term implications to British Columbia of alternative rates of timber harvesting from the area,

Alternative rates of harvest

- *harvest flow/socio-economic implications*

The nature of the transition from harvesting old-growth forests to harvesting second-growth forests is a major consideration in determining AACs in many parts of the province. In the short term, the presence of large timber volumes in older forests often permits harvesting above long-term levels without jeopardizing future timber supply. In keeping with the objectives of good forest stewardship, AACs in British Columbia have been and continue to be determined to ensure that current and mid-term harvest levels will be compatible with a smooth transition toward the usually (but not always) lower long-term harvest level. Thus, timber supply should remain sufficiently stable so that there will be no inordinately adverse impacts on current or future generations. To achieve this, the AAC determined must not be so high as to cause later disruptive shortfalls in supply nor so low as to cause immediate social and economic impacts that are not required to maintain forest productivity and future harvest stability.

The licensee selected an even-flow harvest approach to modelling timber supply for TFL 35. Using this approach, the projected harvest level is dependent on the period when timber supply is most limited during the 250-year forecast period. Based upon their review of the base case, BCFS staff note that the projected growing stock is still increasing at the end of the forecast period, indicating that the long-term harvest level probably could be higher were it not for the even-flow constraint.

Using base case assumptions, the licensee provided one alternative to the harvest levels projected in the base case. In this alternative, the licensee attempted to attain the highest possible initial harvest level and attained the same level projected in the base case in the short and mid terms. In this scenario, the harvest level is the same as in the base case for the first 110 years, after which it rises to a long-term level of approximately 137 000 cubic metres per year.

Based upon my review and discussions with BCFS staff, I conclude that the initial harvest level modelled in the base case approximates the highest possible level given the even-flow parameter and other assumptions applied. In addition, I conclude that the long-term timber supply for this management unit may be higher than modelled in the base case. I have taken this into consideration in my determination.

(c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities;

Timber processing facilities

- existing mills

The majority of logs harvested from TFL 35 are directed to the licensee's Kamloops sawmill, which processes 412 000 cubic metres per year. TFL 35 and Weyerhaeuser's forest licences supply 250 000 cubic metres per year, with the remaining 162 000 cubic metres per year being obtained through purchase or trade agreements with other licensees.

I note the contribution of the TFL 35 timber harvest to the licensee's milling operations is significant and have considered this in my determination.

d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia;

Economic and social objectives

- Minister's letter and memorandum

The Minister has expressed the economic and social objectives of the Crown for the province in two documents to the chief forester—a letter dated July 28, 1994, (attached as Appendix 3) and a memorandum dated February 26, 1996, (attached as Appendix 4). These economic and social objectives are an important consideration in my determination of the AAC for TFL 35.

The letter and memorandum include objectives for forest stewardship, a stable timber supply, and a managed transition from old-growth to second-growth forests, so as to provide for community stability.

The Minister stated in his 1994 letter, that "any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability." He placed particular emphasis on the importance of long-term community stability and the continued availability of good forest jobs. To this end he asked that the chief forester consider the potential impacts on timber supply of commercial thinning and harvesting in previously uneconomical areas. To encourage this the Minister suggested consideration of partitioned AACs.

The Minister's 1996 memorandum addressed the effects of visual resource management on timber supply. He asked that pre-Code constraints applied to timber supply in order to meet VQOs be re-examined when determining AACs in order to ensure they do not unnecessarily restrict timber supply.

I have considered the contents of the letter and memorandum in my determination of the AAC for TFL 35. I note that commercial thinning is not occurring to any significant extent on TFL 35, and that the licensee has not indicated any plans to undertake any commercial thinning in its proposed MP No. 9.

As discussed earlier under *marginally-merchantable* stands, I note that the volume harvested from these stands has not been proportional to their contribution to the timber harvesting land base; however, BCFS staff confirm that the licensee has had to give harvesting priority to stands infested with mountain pine beetle. I note that the licensee has been tracking and reporting on its harvesting operations in marginally-merchantable stands and has renewed its commitment to continue this monitoring process in its proposed MP No. 9. For this determination, I conclude that there is no reason to establish a partition in the AAC to encourage harvesting in these stand types.

- local objectives

The Minister's letter of July 28, 1994, suggests that the chief forester should consider important social and economic objectives that may be derived from the public input in the timber supply review where these are consistent with government's broader objectives.

The licensee indicates in its proposed MP No. 9 that it actively solicited input on its *Statement of Management Objectives, Options, and Procedures* (SMOOP) and its draft management plan.

I am satisfied that the licensee has carried out its public involvement obligations satisfactorily, and that no specific issues were identified in public review which would impact this determination.

Community dependence

According to the licensee, harvesting operations on TFL 35, which are all conducted under contract, primarily employ residents of Kamloops. The licensee also owns and operates a sawmill in Kamloops that processes the majority of the timber harvested from the TFL. In its SMOOP, the licensee indicates that 415 permanent and 90 seasonal employees work in its Vavenby and Kamloops operations. According to the licensee, processing of wood fibre from TFL 35 accounts for approximately 13 percent of the employment (about 66 employees), at the Vavenby and Kamloops sawmills.

I acknowledge the importance of the TFL 35 timber supply to the local economy and have considered this in my AAC determination.

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

Abnormal infestations and salvage

- *unsalvaged losses*

Numerous parasites, fungi or plants can kill trees or degrade the quality and value of logs. Unsalvaged losses are timber volumes destroyed or damaged by agents such as fire and disease, that are not recovered through salvage operations.

Estimates for unsalvaged losses account for epidemic infestations that are not incorporated into yield estimates used in the analysis. Timber volume losses due to insects and diseases that normally affect stands (endemic losses) are accounted for in inventory sampling for existing timber yield estimation or through other methods. Losses associated with second-growth stands are addressed by application of operational adjustment factors (OAFs) as noted previously in this rationale.

TFL 35 has an extensive road system allowing for easy access and recovery of salvage timber. This has allowed the licensee to develop and implement a detailed pest and windthrow management strategy. Annual monitoring is completed to identify pest infestations and wind-thrown timber. Aggressive fire protection has been maintained through co-operation with the BCFS Regional Fire Centre.

In this analysis, unsalvaged losses were quantified by reviewing the last five years' activities. The annual loss estimates associated with bark beetle infestations, fires, and windthrow were 439 cubic metres, 490 cubic metres, 48 cubic metres, and 976 cubic metres, respectively. Based on these estimates, the licensee assumed that unsalvaged losses represent approximately 0.7 percent of the annual volume harvested. BCFS staff have reviewed this information and indicate that the approach used in the base case was similar to that used in the timber supply analysis for the Kamloops TSA.

I accept that the base case estimates for unsalvaged losses represent the best available information and are appropriate for use in this determination

Reasons for Decision

In reaching my decision on an AAC for TFL 35, I have considered all factors presented above and have reasoned as follows:

For the reasons stated in 'Timber Supply Analysis' and from reviewing the considerations as recorded above, I accept the licensee's base case (Option 1) as an adequate basis from which to assess timber supply for this AAC determination.

In the base case, an even-flow timber supply of 125 200 cubic metres per year, which is 400 cubic metres per year less than the current AAC, was maintained for the entire 250-year forecast period.

In determining each AAC, I identify factors which, considered separately, indicate that the timber supply may be either greater or less than that projected in the base case. Generally some of these factors can be quantified and their impacts assessed with some reliability. Others may influence timber supply by adding an element of risk or uncertainty to the decision but cannot be reliably quantified at this time. I account for these latter factors in my determination in more general terms.

For this determination, I have identified two factors that indicate that the timber supply projected in the base case may have been overestimated:

- *Marginally-merchantable stands:* Approximately 8 percent of the timber harvesting land base consists of these stand types, whereas harvesting of such stands has been at a much smaller percentage of the total harvest over the past several years. I acknowledge that this may have been because the licensee was concentrating on harvesting stands infested with mountain pine beetle, and thus I accept the assumptions in the current base case. However, I am concerned that this significant portion of the timber harvesting landbase could, in fact, prove to be not economically viable, given the paucity of harvesting in these areas in recent years. At the time of the next AAC determination I will be especially attuned to documentation of harvesting in these areas over the coming five years.
- *Regeneration strategies:* Although the base case modeling reflects recent practice, it is evident that the licensee is increasingly planting mixed species, which will likely increase the time needed to achieve green-up and free-to-grow status. I have concluded that this constitutes a small downward influence on long-term timber supply, relative to the base case.

For this determination, I have also identified several additional factors that are particularly uncertain, and which impart a degree of risk to the determination

- *Site productivity estimates*: I have concluded that the estimated site indices for spruce are uncertain, given the cautionary note in the J.S. Thrower report. I conclude, however, that any error relative to actual site productivity and the potential impact on the base case is likely to be minor.

- *Terrain stability*: It is uncertain how much timber supply will be contributed by stands on terrain class IV. Based on the licensee's current forest development plan commitment to harvest such stands, I have accepted the assumptions used in the base case as adequate for use in this determination. However, as described under "Implementation", I request that the licensee document its performance in terrain class IV so that the experience can be reflected in the next timber supply analysis.
- *Riparian areas:* Based on the information presented by former MELP staff, I have concluded that actual management practice within riparian management zones may be more constraining on timber supply than was modelled in the base case. However, I also have noted that riparian management zones may overlap, to an unknown extent, with areas to be retained as old growth management areas and wildlife tree patches. I have accepted the assumptions applied in the base case regarding riparian habitat adequate, but encourage the licensee to document its performance over the next five years in order to address the concerns raised by former MELP staff.
- *Landscape-level biodiversity:* With respect to implementing landscape-level biodiversity management, I have considered in detail the licensee's and the district manager's conflicting interpretations of the 4-percent limit on timber supply impact specified in the KLRMP. I note that the district manager has made his interpretation known to the licensee, and that any disagreement with this interpretation can be resolved by the IAMC. Until the IAMC provides further direction on this issue, the district manager's interpretation stands.

In reaching my determination I have considered the above factors and have evaluated them on the basis of which portion of the forecast period they affect (i.e., the short, mid, or long term). I have considered the uncertainties mentioned above and conclude that none of them individually, or in concert, cause undue risk to the short-term timber supply projected in the base case.

I note that the short-term timber supply attained in the base case is only 400 cubic metres per year (0.3 percent) lower than the current AAC. I do not expect that any significant mid-term timber-supply deficits would have been evident if the current AAC had been used as the initial harvest level in the model.

Determination

I have considered and reviewed all the factors documented above, including the risks and uncertainties of the information provided. It is my determination that a timber harvest level that accommodates objectives for all forest resources during the next five years, that reflects current management practices as well as the socio-economic objectives of the Crown, can be best achieved on TFL 35 by establishing an AAC of 125 600 cubic metres. This is the same as the AAC for the most recent five-year period.

This determination is effective November 1, 2001 and will remain in effect until a new AAC is determined, which must take place within five years of the date of this determination.

If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the five years required by legislation.

Implementation

In the period following this determination and leading to the subsequent determination, I encourage BCFS and licensee staff to undertake the tasks and studies noted below that I have also mentioned in the appropriate sections of this rationale document. I recognize that the ability to undertake these projects is dependent on the availability of staff time and funding. However, this work will be important to help reduce the risk and uncertainty associated with key factors that affect timber supply on TFL 35. I encourage the licensee to:

- re-examine the extent of the area with low site productivity that contributes to the timber harvesting land base;
- confirm or refine the estimates of site index for high elevation areas and for spruce generally;
- continue to document its harvesting performance in marginally-merchantable stands and within areas classified as terrain class IV;
- review its estimates of road width and in-block disturbance;
- review the operational adjustment factors used to generate yield estimates for managed stands;
- improve the modelling of mixed species regeneration;
- work with MSRM and BCFS staff to complete delineation of old growth management areas; and
- document the area of riparian management zones and the basal area retained when harvesting in those zones.

Ken Baker

Ken Baker
Deputy Chief Forester
November 23, 2001

Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, reads as follows:

Allowable annual cut

8. (1) The chief forester must determine an allowable annual cut at least once every 5 years after the date of the last determination, for

(a) the Crown land in each timber supply area, excluding tree farm licence areas, community forest areas and woodlot licence areas, and

(b) each tree farm licence area.

(2) If the minister

(a) makes an order under section 7 (b) respecting a timber supply area, or

(b) amends or enters into a tree farm licence to accomplish the result set out under section 39 (1) (a) to (d),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

(c) within 5 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and

(d) after the determination under paragraph (c), at least once every 5 years after the date of the last determination.

(3) If

(a) the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and

(b) the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 5 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

(4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).

(5) In determining an allowable annual cut under subsection (1) the chief forester may specify portions of the allowable annual cut attributable to

(a) different types of timber and terrain in different parts of Crown land within a timber supply area or tree farm licence area, and

(b) different types of timber and terrain in different parts of private land within a tree farm licence area.

(c) [Repealed 1999-10-1.]

(6) The regional manager or district manager must determine an allowable annual cut for each woodlot licence area, according to the licence.

(7) The regional manager or the regional manager's designate must determine a rate of timber harvesting for each community forest agreement area, in accordance with

(a) the community forest agreement, and

(b) any directions of the chief forester.

(8) In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area,

(ii) the expected time that it will take the forest to become re-established on the area following denudation,

(iii) silviculture treatments to be applied to the area,

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,

(c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities,

(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

Appendix 2: Section 4 of the *Ministry of Forests Act*

Section 4 of the *Ministry of Forests Act* (consolidated 1988) reads as follows:

Purposes and functions of ministry

4. The purposes and functions of the ministry are, under the direction of the minister, to
   (a) encourage maximum productivity of the forest and range resources in British Columbia;
   (b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;
   (c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the government and with the private sector;
   (d) encourage a vigorous, efficient and world competitive timber processing industry in British Columbia; and
   (e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.

Documents attached:

Appendix 3: Minister of Forests' letter of July 28, 1994

Appendix 4: Minister of Forests' memo of February 26, 1996

File: 10100-01

JUL 28 1994

John Cuthbert
Chief Forester
Ministry of Forests
595 Pandora Avenue
Victoria, British Columbia
V8W 3E7

Dear John Cuthbert:

Re: Economic and Social Objectives of the Crown

The *Forest Act* gives you the clear responsibility for determining Allowable Annual Cuts, decisions with far-reaching implications for the province's economy. The *Forest Act* provides that you consider the social and economic objectives of the Crown, as expressed by me, in making these determinations. The purpose of this letter is to provide this information to you.

The social and economic objectives expressed below should be considered in conjunction with environmental considerations as reflected in the Forest Practices Code, which requires recognition and better protection of non-timber values such as biodiversity, wildlife and water quality.

The government's general social and economic objectives for the forest sector are made clear in the goals of the Forest Renewal Program. In relation to the Allowable Annual Cut determinations you must make, I would emphasize the particular importance the government attaches to the continued availability of good forest jobs and to the long-term stability of communities that rely on forests.

Through the Forest Renewal Plan, the government is taking the steps necessary to facilitate the transition to more value-based management in the forest and the forest sector. We feel that adjustment costs should be minimized wherever possible, and to this end, any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability.

.../2

Province of
British Columbia

Minister of
Forests

Parliament Buildings
Victoria, British Columbia
V8V 1X4

In addition to the provincial perspective, you should also consider important local social and economic objectives that may be derived from the public input on the Timber Supply Review discussion papers where these are consistent with the government's broader objectives.

Finally, I would note that improving economic conditions may make it possible to harvest timber which has typically not been used in the past. For example, use of wood from commercial thinnings and previously uneconomic areas may assist in maintaining harvests without violating forest practices constraints. I urge you to consider all available vehicles, such as partitioned cuts, which could provide the forest industry with the opportunity and incentive to demonstrate their ability to utilize such timber resources.

Yours truly,

Andrew Petter
Minister

Province of British Columbia
OFFICE OF THE MINISTER

Ministry of Forests

MEMORANDUM

File: 16290-01

February 26, 1996

To: Larry Pedersen
Chief Forester

From: The Honourable Andrew Petter
Minister of Forests

Re: The Crown's Economic And Social Objectives Regarding Visual Resources

Further to my letter of July 29, 1994, to your predecessor, wherein I expressed the economic and social objectives of the Crown in accordance with Section 7 of the *Forest Act*, I would like to elaborate upon these objectives as they relate to visual resources.

British Columbia's scenic landscapes are a part of its heritage and a resource base underlying much of its tourism industry. They also provide timber supplies that are of significant economic and social importance to forest industry dependent communities.

Accordingly, one of the Crown's objectives is to ensure an appropriate balance within timber supply areas and tree farm licence areas between protecting visual resources and minimizing the impact of such protection measures on timber supplies.

As you know, I have directed that the policy on management of scenic landscapes should be modified in light of the beneficial effects of the Forest Practices Code. In general, the new policy should ensure that establishment and administration of visual quality objectives is less restrictive on timber harvesting. This change is possible because alternative harvesting approaches as well as overall improvement in forest practices will result in reduced detrimental impacts on visually sensitive areas. Also, I anticipate that the Forest Practices Code will lead to a greater public awareness that forest harvesting is being conducted in a responsible, environmentally sound manner, and therefore to a decreased public reaction to its visible effects on the landscape. In relation to the Allowable Annual Cuts determinations that you make, please consider the effects that the new policy will have in each Timber Supply Area and Tree Farm Licence.

.../2

In keeping with my earlier letter, I would re-emphasize the Crown's objectives to ensure community stability and minimize adjustment costs as the forest sector moves to more value-based management. I believe that the appropriate balance between timber and visual resources will be achieved if decisions are made consistent with the ministry's February 1996 report *The Forest Practices Code: Timber Supply Analysis*.

Finally, in my previous letter I had asked that local economic and social objectives be considered. Please ensure that local views on the balance between timber and visual resources are taken into account within the context of government's broader objectives.

Andrew Petter
Minister of Forests